

Project Title: *CLEAN WATERSHEDS FOR A CLEAN BAY* - Implementing the San Francisco Bay PCBs and Mercury TMDLs with a Focus on Urban Runoff.

Abstract: Clean Watersheds for a Clean Bay (CW4CB) will use a partnership-driven strategy to take the next step in a multi-year regional effort to reduce loading of sediment-bound pollutants to the Bay and implement the PCBs and mercury Total Maximum Daily Load (TMDL) water quality restoration programs. CW4CB will make substantial progress towards reducing annual loading of PCBs and mercury to the Bay and will lay the groundwork for fully meeting the TMDL allocations in the future. CW4CB will select five high priority subwatersheds that discharge urban runoff with PCBs and other pollutants to the Bay, identify PCB and mercury source areas within the project subwatersheds and refer these sites to regulatory agencies for cleanup and abatement, develop methods to enhance removal of sediment with PCBs and other pollutants during municipal sediment management activities, retrofit eight to 10 urban runoff treatment facilities into existing infrastructure throughout the Bay Area, and facilitate development and implementation of a regional risk reduction program that focuses on educating the public about the health risks of consuming certain species of Bay fish that contain high levels of PCBs and mercury. The knowledge and experience gained and the lessons learned during CW4CB will be promoted and made readily available to inform future similar efforts by others in the Bay Area and elsewhere in California and the United States.

Applicant: Bay Area Stormwater Management Agencies Association (BASMAA)
Principal Investigator: Geoff Brosseau (BASMAA Executive Director)
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Funding Requested: \$5 Million

Total Project Cost: \$6.84 Million (\$1.84 Million Non-Federal Match)

Project Period: Four Years (May 2010 – April 2014)

Proposal Narrative Organization

This proposal narrative consists of the following sections: 1) Introduction, 2) Project Overview, 3) Problem Statement, 4) Environmental Results, 5) Partnering and Budget Narrative 6) Scope of Work, and 7) Programmatic Capability. These sections are followed by Attachment A) Resumes, B) Support Letters, and C) Watershed Maps.

1. Introduction

San Francisco Bay is one of the largest and most biologically diverse estuaries on the west coast of the United States. The Bay Area basin (Figure 1) is world renowned for its scenic beauty, commercial and industrial enterprises, recreational opportunities, fisheries, and wildlife habitat. All of these features are vital to the health and economies of the local communities, where more than seven million people live and work in the highly developed watersheds that surround the Bay. The water quality of this precious resource is inextricably linked to historical and current human activities in these urban watersheds. Urban stormwater runoff is of particular concern as it conveys many types of pollutants from the urban landscape to the Bay.

The Bay Area Stormwater Management Agencies Association (BASMAA), a 501(c)(3) non-profit organization representing Bay Area cities and counties, focuses on a number of regional challenges related to stormwater runoff, including identifying opportunities to improve the quality of urban runoff that flows to the Bay. The water quality link between the Bay and its surrounding watersheds inspired BASMAA to propose the project described below - Clean Watersheds for a Clean Bay (CW4CB).

2. Project Overview

CW4CB represents the next step in a multi-year regional effort that began in 2000 to reduce loading of sediment-bound pollutants to the Bay and implement the PCBs and mercury Total Maximum Daily Load (TMDL) water quality restoration programs. CW4CB will select five high priority subwatersheds that discharge urban runoff with PCBs and other pollutants to the Bay, usually in areas with industrial land uses dating back many decades. CW4CB will then identify PCB and mercury source areas within the project subwatersheds and refer these sites to regulatory agencies for cleanup and abatement. CW4CB will also develop methods to enhance removal of sediment with PCBs and other pollutants during municipal sediment management activities (e.g., street sweeping) in the project subwatersheds. Furthermore, CW4CB will retrofit eight to 10 urban runoff treatment facilities into existing infrastructure throughout the Bay Area to address areas with elevated PCBs and other pollutants in urban runoff. Yet another element of this project will facilitate development and implementation of a regional risk reduction program that focuses on educating the public about the health risks of consuming certain species of Bay fish that contain high levels of PCBs and mercury. Finally, the knowledge and experience gained and the lessons learned during CW4CB will be promoted and made readily available to inform future similar efforts by others in the Bay Area and elsewhere in California and the United States. BASMAA is requesting \$5M in project funds from USEPA's San Francisco Bay Area Water Quality Improvement Fund towards the \$6.84M total project cost. The remaining \$1.84M (about 27% of the total project cost) will be a match contributed by BASMAA and six of the Bay Area countywide stormwater management agencies.



Figure 1. Map of San Francisco Bay Basin.

3. Problem Statement

PCBs, mercury and other sediment-bound pollutants are found in San Francisco Bay water, sediments, and biota. Concentrations of PCBs and mercury in certain Bay fish exceed target levels and may pose a health risk to people who consume fish caught in the Bay. As a result, the California Office of Environmental Health Hazard Assessment issued an advisory on the consumption of fish from the Bay. Thus it was established that a vital beneficial use of the Bay, commercial and sport fishing, is not attained, with local subsistence fishers and their families being of particular concern. This led to the Bay being designated an impaired water body on the Clean Water Act "303(d) list" due to PCBs and mercury. In response, the San Francisco Bay Regional Water Quality Control

Board (Regional Water Board) has developed comprehensive TMDL programs to identify and control sources of PCBs and mercury to the Bay and restore water quality.

It has long been suspected that municipal stormwater discharges may contribute to the PCB and mercury water quality problem in the Bay, but before the year 2000 there was little direct evidence to support this hypothesis. BASMAA agencies addressed this data gap by surveying concentrations of PCBs and mercury in embedded sediments collected from stormwater conveyances (e.g., catch basins, storm drain system piping, stormwater pump station sumps, flood control channels, and creeks) throughout the Bay Area during the fall of 2000 and 2001. This project is referred to as the Joint Stormwater Agency Project (JSAP). PCB and mercury concentrations were highly variable in urban locations, but ranged up to three orders of magnitude higher than in open space areas. Concentrations were also up to two orders of magnitude higher in urban sediment than in Bay surface sediments collected and analyzed by the San Francisco Estuary Regional Monitoring Program (RMP), suggesting that urban runoff may impact the Bay.

Over the next several years following the JSAP, individual stormwater programs performed case studies in selected urban areas with relatively elevated pollutant concentrations to begin identifying sources and controls, with a focus on PCBs. The techniques employed included further collection and analysis of embedded sediment samples and research on historical and current land use. About 20 areas were investigated.

Most recently, a California Proposition 13-funded project implemented by the San Francisco Estuary Institute (SFEI) performed additional sediment surveys for PCBs and mercury, with the goal of better defining urban watersheds and subwatersheds with elevated levels of these pollutants throughout the Bay Area. The results of this effort are anticipated to be available in the near future.

All of these efforts have identified some watersheds with relatively elevated levels of PCBs and mercury and in a few cases source areas were discovered within these watersheds, but much work remains to be done to identify remaining source areas and in particular, to implement methods to prevent discharges of stormwater runoff containing PCBs, mercury and other pollutants from urban watersheds to the Bay.

4. Environmental Results - Project Outputs and Outcomes

CW4CB is the next step in the above-described multi-year regional effort to reduce loading of PCBs, mercury and other sediment-bound pollutants (e.g., dioxins, PBDEs, chlorinated pesticides and PAHs) to the Bay from urban watersheds, reduce levels entering the estuary food chain, and thereby reduce harm to aquatic ecosystems and human communities.^{1,2}

CW4CB's overarching objective is to implement priority actions called for by the San Francisco Bay PCBs and mercury TMDLs and make substantial progress towards attaining the PCB TMDL urban runoff allocation. Although CW4CB is anticipated to reduce loadings of mercury and other sediment-bound pollutants to the Bay as an ancillary benefit, project activities will be designed and implemented to optimize the reduction of PCB loads. CW4CB's effectiveness evaluation will also focus on PCB load reductions. It is anticipated that the combined effect of all project activities will

¹EPA Strategic Plan Goal 2 (Clean and Safe Water), Objective 2.2 (Protect Water Quality), and Sub-Objective 2.2.1 (Improve Water Quality on a Watershed Basis).

²EPA Strategic Plan Goal 4 (Healthy Communities and Ecosystems) and Objective 4.3 (Restore and Protect Critical Ecosystems).

reduce annual loading of PCBs to the Bay by approximately 0.3 - 1.5 kg per year, reducing the current estimated stormwater runoff load of 20 kg per year³ by about two to eight percent. Furthermore, CW4CB will lay the groundwork for fully meeting the TMDL allocations in the future and thereby help address important impairments to the Bay's beneficial uses. Table 1 summarizes key project tasks and associated outputs and outcomes.

CW4CB is comprised of priority activities that will achieve significant and sustainable environmental results, based on the planning and assessment work completed for the PCB and mercury TMDLs. The TMDL urban runoff requirements will be implemented through the San Francisco Bay Area NPDES Municipal Regional Stormwater Permit (MRP).⁴ The MRP is anticipated to be adopted in the near future and will require a number of PCBs and mercury control activities that are consistent with the TMDLs and CW4CB's tasks. CW4CB's general strategy is also consistent with the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), the Bay Area Integrated Regional Water Management Plan, and the San Francisco Estuary Project Comprehensive Conservation and Management Plan, as summarized in below.

SF Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) (January 2007)

- ✓ 2. Beneficial Uses
- ✓ 3. Water Quality Objectives
- ✓ 4. Implementation Plans
- ✓ 5. Plans and Policies

PCBs & Mercury Total Maximum Daily Loads (TMDLs) (February 2008)

- ✓ Water Quality Attainment Strategies
- ✓ Urban Runoff Allocations

San Francisco Bay Area NPDES Municipal Regional Stormwater Permit
(Tentative Order, 2-11-2009)

- ✓ C.11/12.c - Investigate and Abate Sources of PCBs and Mercury
- ✓ C.11/12.d - Enhance Municipal Sediment Management Practices
- ✓ C.11/12.e - Urban Runoff Treatment Retrofits
- ✓ C.11/12.i - Regional Risk Reduction Program

Bay Area Integrated Regional Water Management Plan (November 2006)

- ✓ Goal A: Contribute to the promotion of economic, social, and environmental sustainability
- ✓ Goal D: Contribute to the protection and improvement of the quality of water resources
- ✓ Goal E: Contribute to the protection of public, health, safety, and property
- ✓ Goal F: Contribute to the protection of environmental resources and habitats.
- ✓ Water Management Strategies

San Francisco Estuary Project Comprehensive Conservation and Management Plan (2007 Update) Key Program Areas:

- ✓ Aquatic Resources
- ✓ Wildlife
- ✓ Pollution Prevention and Reduction
- ✓ Land Use Management
- ✓ Public Involvement and Education
- ✓ Research and Monitoring

³PCBs Total Maximum Daily Load, SFBRWQCB, February 2008.

⁴Municipal Regional Permit, Revised Tentative Order, February 11, 2009.

Table 1. Summary of Key CW4CB Tasks and Associated Budgets, Outputs and Outcomes.

| TASK | IMPLEMENTING PARTIES | USEPA FUNDING | MATCH | TOTAL | OUTPUTS/OUTCOMES |
|--|---|--------------------------|--------------------|--------------------|---|
| 1. Management, oversight, and reporting. | BASMAA, TAC, QAPP consultant. | -- | \$460,000 | \$460,000 | <ul style="list-style-type: none"> ▪ QAPP, quarterly progress reports, draft/final project report. |
| 2. Select project watersheds. | BASMAA. | -- | \$30,000 | \$30,000 | <ul style="list-style-type: none"> ▪ Five priority subwatersheds identified. |
| 3. Identify locations with elevated PCBs/Hg, refer sites to regulatory agencies, and establish cleanup fund. | BASMAA, records review consultant, city staff, monitoring contractor. | \$750,000 | \$350,000 | \$1,100,000 | <ul style="list-style-type: none"> ▪ Locations referred for cleanup. ▪ 100K fund to facilitate cleanups established. ▪ PCB and other pollutant loadings to the Bay reduced.¹ |
| 4. Enhance municipal sediment removal and management practices. | BASMAA, city staff, monitoring contractor. | \$400,000 | \$350,000 | \$750,000 | <ul style="list-style-type: none"> ▪ Enhanced municipal removal and management of sediment with pollutants. ▪ PCB and other pollutant loadings to the Bay reduced.¹ |
| 5A. Urban runoff treatment retrofits - planning and design. | BASMAA, design consultant, city staff. | \$550,000 | \$200,000 | \$800,000 | <ul style="list-style-type: none"> ▪ Conceptual/engineering design, planning and permitting of eight to ten urban runoff treatment retrofits. |
| 5B. Urban runoff treatment retrofits - construction, operation and monitoring. | BASMAA, city staff, construction firms, monitoring contractor. | \$3,200,000 ² | \$200,000 | \$3,350,000 | <ul style="list-style-type: none"> ▪ Eight to ten urban runoff treatment retrofits installed and evaluated. ▪ An estimated 2 to 12 square miles treated by retrofits to reduce potential hydrologic impacts on downstream receiving waters. ▪ PCB and other pollutant loadings to the Bay reduced.¹ |
| 6. Regional risk reduction program. | BASMAA (other partners may include CDPH, BACWA and WSPA). | \$100,000 | \$100,000 | \$200,000 | <ul style="list-style-type: none"> ▪ Public education/outreach materials. ▪ Impacted populations will have a greater awareness and understanding of fish contamination issues and options for reducing exposures to pollutants in Bay fish. |
| 7. Outreach and technology transfer. | BASMAA, consultant(s) | -- | \$150,000 | \$150,000 | <ul style="list-style-type: none"> ▪ Project web portal. ▪ Guidance manual. ▪ Written outreach materials. ▪ Technical workshops. |
| TOTAL: | | \$5,000,000 | \$1,840,000 | \$6,840,000 | |

¹All project activities combined are anticipated to reduce PCBs loadings about 0.3 - 1.5 kg/year.

²This figure assumes a 15% contingency will be built in to estimated construction costs.

CW4CB will yield a number of other important local and regional benefits, including:

- Providing residents, workers and visitors in the project watersheds with a safer and healthier environment (PCBs concentrations in sediment samples from Bay Area watersheds have sometimes exceeded screening levels for human direct exposure at sites within residential and commercial/industrial land uses).
- Enhancing the desirability of commercial enterprise zones and residential neighborhoods in the project watersheds.
- Increasing Bay Area urban acreage treated with infrastructure retrofits to remove pollutants and reduce hydrologic impacts on downstream receiving waters and thereby protect their beneficial uses.
- Reducing pollution in run-off from urban development and helping mitigate the impact of development on water quality.
- Informing future land use planning, development practices (e.g., low impact development), and efforts to investigate and abate sediment-bound pollutants in other urban watersheds, and thus leading to improvements in water quality and the environment in the Bay Area and other urban areas in California and the United States.

In summary, CW4CB is anticipated to realize significant and sustainable environmental benefits to Bay Area local communities, the region, and other urban communities in California and the United States that apply the lessons learned in this project.

5. Partnering and Budget Narrative

BASMAA is a well established regional partnership that focuses on water quality issues related to stormwater runoff. BASMAA is comprised of the nine municipal stormwater programs in the San Francisco Bay Area which in turn represent 96 agencies, including 79 cities and 6 counties. The jurisdictions of these agencies cover most of the watershed immediately surrounding San Francisco Bay. The BASMAA partnership facilitates the efficient use of public resources through regional information sharing, consistency, and cooperation.

BASMAA member agencies⁵ comprise six of CW4CB's specific project partners. An additional potential partner, the Bay Area Clean Water Agencies (BACWA), is not part of BASMAA. BACWA is a joint public powers authority whose members include public utilities that collect and treat municipal wastewater from the nine Bay Area counties that surround San Francisco Bay. BACWA's partnership in CW4CB would focus on the regional risk reduction task described later.

BASMAA is requesting \$5M in project funds from USEPA's San Francisco Bay Area Water Quality Improvement Fund towards the \$6.84M total project cost. The remaining \$1.84M (about 27% of the total project cost)⁶ match will be comprised of contributions from project partners over the four year project term (Table 2). These contributions will be largely in the form of in-kind services. A

⁵These agencies are the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), the Alameda Countywide Clean Water Program (ACCWP), the Contra Costa Clean Water Program (CCCWP), the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), the Fairfield-Suisun Urban Runoff Management Program (FSURMP), and the Vallejo Sanitation and Flood Control District (VSFCD).

⁶Bay Area municipal agencies were able to commit to this \$1.84M match despite the current difficult economic climate and budget shortfalls faced by many local agencies.

letter is attached from each of these agencies verifying the commitment to contribute to the project match.

Many of the project activities will take place within the Cities of San Carlos, San Jose, Oakland and Richmond. These cities have agreed to be additional project partners and, as described later, host project subwatersheds (support letters are attached), but are not making a specific financial commitment to the project. However, many of CW4CB’s activities will be leveraged in that staff from these cities will assist with implementation of various aspects of the project fieldwork, as described in more detail later. The opportunity for future leveraging of some tasks is also anticipated through California’s Proposition 84 Bond.

Table 1 summarizes the project tasks, implementing parties, and associated budgets, including how USEPA funding and the project match are apportioned to each task. It should be noted that Table 1 divides Task 5, Urban Runoff Treatment Retrofits, into subtasks A and B, with the budget itemized for each subtask. Subtask A covers planning and design, including preparing the documentation required to enable environmental review of the proposed retrofit projects under the California Environmental Quality Act (CEQA). Subtask B includes construction, operation/maintenance and monitoring.

| BASMAA Agency | Contribution |
|----------------------|---------------------|
| SCVURPPP | \$ 570,000 |
| ACCWP | \$ 500,000 |
| CCCWP | \$ 285,000 |
| SMCWPPP | \$ 240,000 |
| FSURMP | \$ 45,000 |
| VSFCD | \$ 40,000 |
| BASMAA | \$ 160,000 |
| Total: | \$ 1,840,000 |

6. Scope of Work / Approach

Table 2. Non-Federal Match Contributions.

The following sections describe CW4CB's seven project tasks. Table 3 summarizes the schedule of project milestones and deliverables. Figure 2 is a flow chart illustrating the interrelationships among the tasks and associated sub-tasks.

Task 1. Management, Oversight, and Reporting

- **WQIF Funding:** \$0. **Non-federal Matching Funds:** \$460,000.
- **Key Tasks and Activities:** Project management, record-keeping, accounting, reporting, technical oversight of all project activities, and QAPP development.
- **Deliverables:** QAPP, quarterly progress reports and draft and final project report.

BASMAA will serve as CW4CB's prime contractor. On behalf of the BASMAA Board of Directors, the Principal Investigator (PI) will be Geoff Brosseau, BASMAA's Executive Director. He will be responsible for overall project management and all fiscal activities related to agreements with USEPA and sub-contractors. Mr. Brosseau will be assisted by a project management team consisting of representatives from several BASMAA agencies (i.e., stormwater management programs). One member of the team and BASMAA’s technical lead on PCBs, Jon Konnan (SMCWPPP), will be the Project Manager (PM). The other members of the project management team will be: Chris Sommers (SCVURPPP), Arleen Feng (ACCWP), Jamison Crosby (CCCWP),

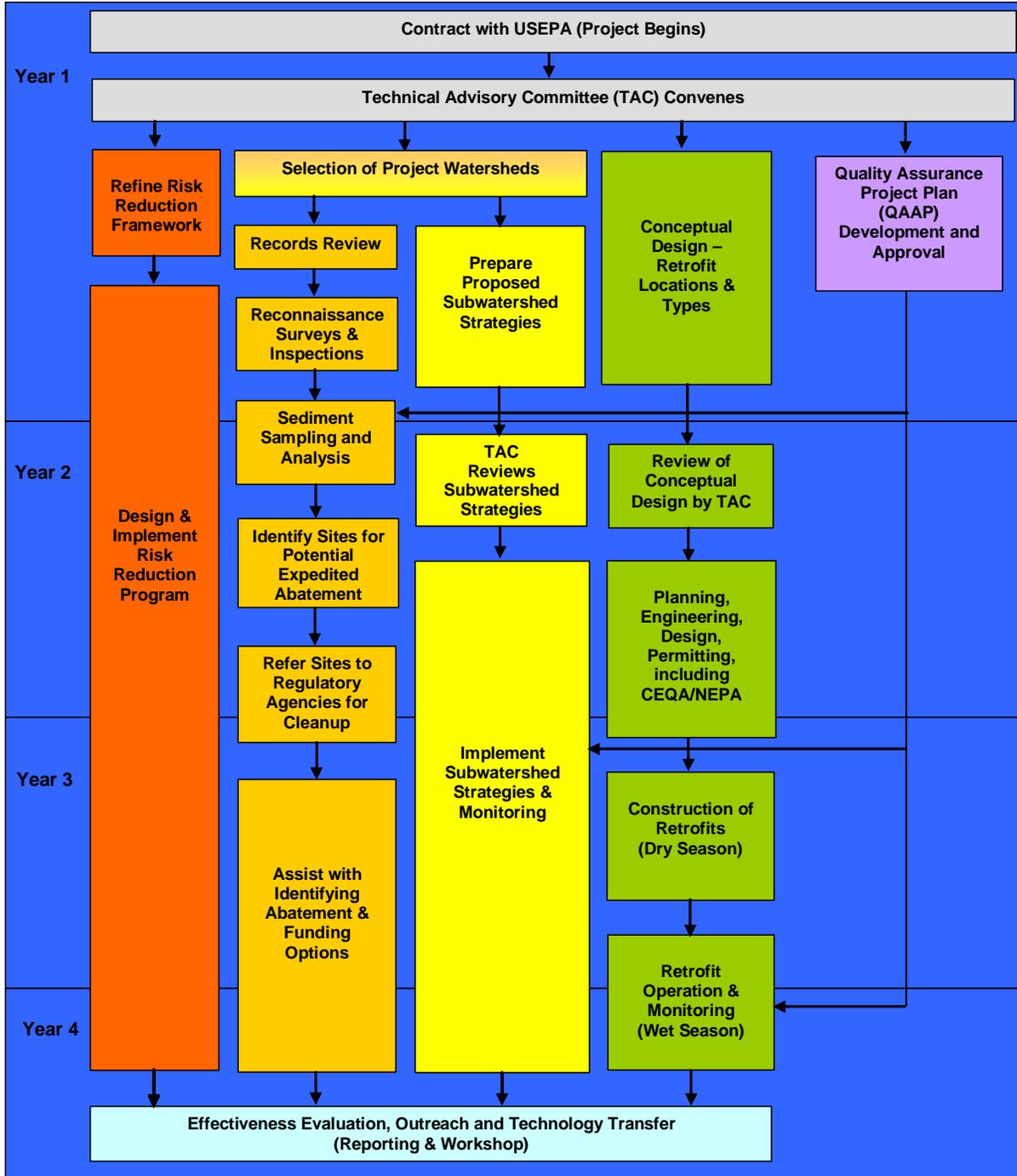


Figure 2. Flow Chart of Project Tasks

Table 3. Schedule of CW4CB Milestones and Deliverables

| Project Milestones and Deliverables | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|--|--------|----|----|----|--------|----|----|----|--------|----|----|----|--------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 |
| Task 1. Management, Oversight, and Reporting: | | | | | | | | | | | | | | | | |
| Convene Technical Advisory Committee (TAC) | ■ | | | | | | | | | | | | | | | |
| Quarterly Progress Reports to USEPA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Draft Quality Assurance Project Plan (QAPP) | ■ | | | | | | | | | | | | | | | |
| USEPA Approval of QAPP | | | ■ | | | | | | | | | | | | | |
| Draft Project Report to USEPA | | | | | | | | | | | | | | | ■ | |
| Final Project Report to USEPA | | | | | | | | | | | | | | | | ■ |
| Task 2. Select Project Subwatersheds: | | | | | | | | | | | | | | | | |
| Review Existing Data & Select Subwatersheds | ■ | | | | | | | | | | | | | | | |
| Task 3. Identify Locations with Elevated PCBs and/or Mercury for Abatement: | | | | | | | | | | | | | | | | |
| Records Review | ■ | ■ | ■ | | | | | | | | | | | | | |
| Reconnaissance Surveys & Inspections | | | ■ | ■ | | | | | | | | | | | | |
| Sediment Sampling and Analysis | | | | ■ | ■ | | | | | | | | | | | |
| Identify Sites for Potential Expedited Abatement | | | | | | ■ | ■ | ■ | ■ | | | | | | | |
| Refer Sites to Regulatory Agencies for Cleanup | | | | | | ■ | ■ | ■ | ■ | | | | | | | |
| Assist with Identifying Abatement & Funding Options | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| Effectiveness Evaluation | | | | | | | | | | | | | | ■ | ■ | |
| Task 4. Enhance Municipal Sediment Removal and Management Practices: | | | | | | | | | | | | | | | | |
| Prepare Proposed Subwatershed Strategies | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | |
| Implement Subwatershed Strategies & Monitoring | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| Effectiveness Evaluation | | | | | | | | | | | | | | ■ | ■ | |

| Task 5. Urban Runoff Treatment Retrofits: * | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conceptual Design - Retrofit Locations & Types | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| Planning/Engineering Design/Permitting/CEQA | | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| Construction of Retrofits (Dry Season) | | | | | | | | | ■ | ■ | | | | | | |
| Retrofit Operation & Monitoring (Wet Season) | | | | | | | | | | | ■ | ■ | | | | |
| Effectiveness Evaluation | | | | | | | | | | | | | ■ | ■ | ■ | |
| Task 6. Regional Risk Reduction Program: | | | | | | | | | | | | | | | | |
| Convene a risk reduction stakeholder advisory group (SAG) | ■ | | | | | | | | | | | | | | | |
| Develop a broad risk communication strategy | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Award and oversee implementation of mini-grants | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Conduct evaluation activities | | | | | | | | | | | | | | ■ | ■ | |
| Task 7. Outreach and Information Transfer: | | | | | | | | | | | | | | | | |
| Develop and Update Project Web Portal | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Develop Written Outreach Materials | | | | | | | | | | | | | | ■ | ■ | |
| Develop Guidance Manual | | | | | | | | | | | | | | ■ | ■ | |
| Technical Workshop | | | | | | | | | | | | | | | | ■ |

* Note: Generic schedule; Actual schedules expected to vary by location.

and Kevin Cullen (FSURMP). The project management team will assist the PI and PM to ensure that all project activities are completed on-time and within budget by having specific responsibility for oversight of project activities within the jurisdiction of the BASMAA agency that they represent. BASMAA will consult with USEPA and contract with project consultants, contractors and construction firms. In addition, the project management team will coordinate with the project partners and key regional agencies for project activities within the jurisdiction of the BASMAA agency that they represent, including the Regional Water Board, and prepare quarterly progress reports and a draft and final project report. The project management team will also work closely and coordinate with key personnel from the project partners, including the following Bay Area city personnel: James Downing (City of San Jose), Robert Weil (City of San Carlos), Lesley Estes (City of Oakland), and Lynne Scarpa (City of Richmond).

Resumes are attached for the PI, PM, project management team members, and project partner key personnel.

At the outset of the project, BASMAA will convene a Technical Advisory Committee (TAC). The TAC will be tasked with providing the project with technical guidance and oversight, including key input on all major decision points (e.g., confirming the location of project subwatersheds and selecting and siting treatment retrofits) and reviewing and commenting on drafts of all project deliverables. The TAC will be comprised of Dr. Tom Mumley (Assistant Executive Officer, Regional Water Board) and other appropriate technical experts from the Bay Area and elsewhere in the United States.

During the first quarter of year one of the project (Table 3), a Quality Assurance Project Plan (QAPP) addressing the field monitoring in the below tasks will be developed and submitted to USEPA for approval. All specified field and laboratory sampling and Quality Assurance / Quality Control (QA/QC) protocols, data management methods, and reporting procedures will be compatible with the California Surface Water Ambient Monitoring Program (SWAMP) and the San Francisco Estuary Regional Monitoring Program (RMP).

Task 2. Select Project Subwatersheds

- **WQIF Funding:** \$0. **Non-federal Matching Funds:** \$30,000.
- **Key Tasks and Activities:** Implement pertinent data review and final selection of five project subwatersheds.
- **Deliverables:** Subwatershed selection documented in first quarterly progress report.
- **Outputs:** Five priority Bay Area subwatersheds identified.

CW4CB will include a program of pollution investigation and abatement in high priority Bay Area watersheds. The project will target urban subwatersheds with high potential for discharges of PCBs in urban runoff that is ultimately conveyed to the Bay. The project subwatersheds will include areas of current or historic industrial land uses where elevated levels of PCBs have been found in sediments collected from creeks, stormwater conveyances and roadway-related infrastructure. The selection of project subwatersheds will primarily focus on the presence of PCBs, which are often found in areas with industrial land uses dating back several decades, but mercury and other sediment-bound pollutants will likely be present in such locations. At the outset of the project, CW4CB will perform a comprehensive review of the existing data described earlier (Section 3), including the JSAP, follow-up stormwater program case study work, and sediment surveys

conducted by the SFEI Proposition 13-funded project. Based on the above review and input from the TAC, five project subwatersheds will be selected.

At the time of this application the Cities of San Carlos, San Jose, Oakland and Richmond have agreed to host project subwatersheds (support letters are attached). Most or all of the project subwatersheds will be located in these cities. Examples of candidate subwatersheds are described below.

Pulgas Creek Pump Station Subwatershed, San Carlos

The Pulgas Creek pump station subwatershed is located in the City of San Carlos in San Mateo County. San Carlos has agreed to host one of the five project subwatersheds and this subwatershed will likely be selected. Much of the land use within this approximate 0.5-square mile subwatershed has been industrial dating back several decades. PCBs have been detected at up to about 11 parts per million (ppm) in embedded storm drain and creek sediment samples collected from the pump station sump and its drainage. Based on the results of field sampling and agency research, two potential sources of PCBs to storm drains in the study area were identified: a PG&E substation and a soil and groundwater investigation and remediation site with PCBs and other pollutants. Investigations to date also suggest multiple unidentified sources of PCBs in the study area, given the widespread spatial distribution of PCBs found in storm drain sediments.

Ettie Street Pump Station Subwatershed, Oakland

The Ettie Street pump station subwatershed is located in the City of Oakland in Alameda County. Oakland has agreed to host one of the five project subwatersheds and this subwatershed may be selected. This approximate 2.5-square mile subwatershed includes residential, commercial, and industrial land uses. As part of a state-funded water quality grant project, Oakland has performed visual inspections of public and private properties in this subwatershed and sampling of sediments and soils. PCBs have been found at concentrations up to about 93 ppm in sediments and soils collected from the pump station sump and other locations throughout the subwatershed.

Leo Avenue Subwatershed, San Jose

The Leo Avenue subwatershed is located in the City of San Jose in Santa Clara County. San Jose has agreed to host one of the five project subwatersheds and this subwatershed is under consideration. Land uses in the subwatershed are primarily commercial and industrial. Relatively elevated levels of PCBs (up to about 20 ppm) have consistently been found in the Leo Avenue area. The spatial distribution of PCBs concentrations coupled with an analysis of PCBs homolog distributions suggested that the Union Pacific railroad track right-of-way adjacent to Leo Avenue is a source of PCBs in this subwatershed. Other potential PCB sources include historical activities at other properties adjacent to Leo Avenue.

North Richmond Pump Station Subwatershed, Richmond

The North Richmond Pump Station subwatershed is located in the City of Richmond in Contra Costa County. The City of Richmond has agreed to host one or two of the five project subwatersheds and this area is under consideration. The drainage area of this subwatershed is about 0.5 square miles and includes a variety of land uses. The City of Richmond recently embarked on a planning effort to identify target pollutants in city stormwater, identify priority watersheds within the city, identify likely sources of pollutants, and identify potential control mechanisms for these

pollutants. The primary pollutants of concern in this subwatershed are PCBs and mercury, which are likely present due to a long history of industrial activity in the area. Concentrations of PCBs found in sediment have ranged up to about 1 ppm.

Santa Fe Channel Subwatershed, Richmond

Another subwatershed under consideration in Richmond is the Santa Fe subwatershed. This approximately 2.3 square mile watershed includes a variety of land uses and has historical PCBs and mercury contamination. The City of Richmond has selected the Santa Fe subwatershed as a priority watershed and concentrations of PCBs in sediment have ranged up to about 2 ppm in industrial areas.

Task 3. Identify Locations with Elevated PCB and/or Mercury Concentrations for Abatement

- **WQIF Funding:** \$750,000. **Non-federal Matching Funds:** \$350,000.
- **Leveraged Resources:** City staff will assist with site inspections and other aspects of the fieldwork. Site cleanups will be overseen by appropriate regulatory agencies and implemented by responsible parties or with other available funding.
- **Key Tasks and Activities:** Implement review of existing data and field inspections and monitoring to identify locations with elevated PCB concentrations within project subwatersheds, refer sites to regulatory agencies for cleanup, and establish fund to facilitate site cleanups.
- **Deliverables:** Results documented in quarterly progress reports and draft and final project report.
- **Outputs:** Properties/locations with elevated PCBs and potentially mercury and other pollutants identified and referred to regulatory agencies for cleanup and fund to facilitate cleanups established.
- **Outcomes:** PCB and mercury loadings to San Francisco Bay reduced.

This task focuses on identifying specific locations and properties within the project subwatersheds that are potential sources of PCBs and/or mercury to stormwater conveyances. One model for this task is a recent project conducted by the City of Oakland through a Proposition 13 grant in the amount of \$460,000 awarded by the California State Water Resources Control Board. The project focused on identifying sources of PCB-containing sediments to the storm drain system in the Ettie Street Pump Station subwatershed in Oakland. Based on the Ettie Street project, CW4CB will conduct the below steps at each project subwatershed, adapting and refining these methods as appropriate to local conditions.

1. **Records Review.** CW4CB will interview local and state agency staff and review local and state databases and information sources (e.g., Geotracker, SLIC, Cerclis, and Vistacheck.com), appropriate agency files (e.g., local environmental/health department data, local fire department hazardous material records, and facility inspection and illicit discharge records), and other readily available information, as appropriate (e.g., land use records, historical aerial photographs, reverse telephone directories, Sanborn Fire Insurance Maps, and transformer locations requested of PG&E) to identify potential PCB/mercury source properties and areas where PCB/mercury contaminated sediment accumulates within each of the project subwatersheds, including within stormwater conveyances. To the extent practicable, appropriate records on all businesses in each subwatershed will be screened.⁷ Potential PCB/mercury source areas in each subwatershed will be identified and given a preliminary priority ranking.

2. **Driving/Walking Survey.** CW4CB will work with municipal staff to perform a driving/walking survey of the entire area of each project subwatershed to identify properties that are high priority for site inspections. The survey will build upon the results of the above records review to further identify potential source areas and determine whether runoff from such locations is likely to convey soils/sediments with PCBs or mercury to municipal stormwater conveyances. Based on criteria developed during the Ettie Street project, examples of potential high priority sites include:
 - Previously identified PCB spill site.
 - Historic land use associated with PCB-containing materials.
 - Potential for soils/sediments to erode and migrate off-site, including unpaved areas.
 - Sites with outdoor storage yards and storage tanks.
 - Sites with poor housekeeping.

3. **Site Inspections.** CW4CB will work with municipal staff to perform inspections of selected high priority sites within each project subwatershed. Inspectors will use a checklist developed for Ettie Street project regarding priority uses and activities potentially associated with PCBs, adapted as appropriate for this project. Inspected sites will then be ranked for further investigation, including the below soil/sediment sampling, using criteria developed during the Ettie Street project, adapted for this project as appropriate.

4. **Sediment/Soil Sampling.** CW4CB will test for elevated PCB/mercury concentrations through surface sediment/soil sampling and analysis where visual inspections and/or other information suggest potential source areas within each subwatershed. As with the Ettie Street project, sampling will occur on both the public right of way and private properties. It is anticipated that the process of reconnaissance/inspections and sediment sampling will be iterative in many cases to hone in on source areas in the most cost-effective manner. CW4CB will collect and analyze approximately 70 soil/sediment samples from each of the five project subwatersheds, a number of samples comparable with the Ettie Street project on a per subwatershed basis. Based on 350 samples analyzed for PCBs, total mercury, total organic carbon and particle size distribution (and ten percent of these samples analyzed for the following additional analytes: dioxins, PBDEs, legacy chlorinated pesticides, and PAHs), the total estimated laboratory analysis cost is \$366,000.

⁷This is an extensive task (e.g., the Ettie Street Pump Station subwatershed had approximately 1,700 businesses).

5. **Site Referrals.** Where laboratory data confirm significantly elevated PCB/mercury concentrations in surface sediments/soils, available information on current site conditions and owner/operators and other potentially responsible parties will be provided to the Regional Water Board. The Regional Water Board is a state regulatory agency with investigation and cleanup authorities to facilitate issuance of orders for further investigation and remediation of the subject sites.⁸ The Regional Water Board may refer sites to other regulatory agencies if appropriate (e.g., Department of Toxic Substance Control, USEPA). CW4CB will also provide Regional Water Board staff with general assistance in evaluating abatement options and identify funding sources for abatement. In addition, CW4CB will identify areas within the project subwatersheds for potential expedited abatement on the basis of loading potential including factors such as PCB concentration, mass of sediment, and mobilization potential and/or human health protection thresholds, such as California Human Health Screening Levels. CW4CB will set aside a budget of \$100,000 for technical services to facilitate priority site cleanups as needed on a case by case basis (e.g., further identification of cleanup funding sources, additional history/records research, additional sampling and analysis, communications, other activities as needed to move the cleanup process forward).

To evaluate the effectiveness of this task, CW4CB will assess the available data on the effectiveness of the abatement activities at specific properties/locations within the project subwatersheds and quantitatively estimate the resulting reduction in loads of PCBs (and mercury where applicable) to the Bay. The results of the effectiveness evaluation will be reported in the progress reports as data become available and summarized in the draft and final project report. It is anticipated that the efforts described in this task will be highly leveraged since the cleanups of the identified source areas will be funded outside of this project, including oversight by appropriate regulatory agencies (most likely state agencies) and implementation by responsible parties or with other available funding (e.g., California Cleanup and Abatement Account). In addition, city staff will assist with implementation of the fieldwork, further leveraging this task's efforts.

Task 4. Enhance Municipal Sediment Removal and Management Practices

- **WQIF Funding:** \$400,000. **Non-federal Matching Funds:** \$350,000.
- **Leveraged Resources:** City staff will assist with implementation of the fieldwork and sediment management enhancements put into place will likely continue in the project subwatersheds (and expand to other locations) into the future.
- **Key Tasks and Activities:** Preparation of subwatershed-specific strategies to enhance the pollutant load reduction benefits of municipal operation and maintenance activities; implementation of the strategies in the field in the project subwatersheds.
- **Deliverables:** Subwatershed-specific strategies report; implementation results documented in quarterly progress reports and draft and final project report.
- **Outputs:** Enhanced removal of sediment with PCBs and other pollutants during municipal sediment removal and management activities.
- **Outcomes:** PCB and mercury loadings to San Francisco Bay reduced.

⁸The point of contact with the Regional Water Board will be Janet O'Hara, the Regional Water Board Staff currently tasked with implementation of the San Francisco Bay PCBs TMDL.

In the project subwatersheds, CW4CB will evaluate ways to enhance the PCB, mercury, and other pollutant load reduction benefits of municipal operation and maintenance activities that remove or manage sediment. The evaluation will include working with city staff to enhance sediment-bound pollutant removal during municipal activities such as street sweeping, storm drain inlet and catch basin cleaning, stormwater conveyance maintenance, and pump station maintenance. The evaluation will include consideration of street flushing (potentially with recycled water) and capture, collection, and/or routing to the local sanitary sewer. Simple removal of sediments from gutters and storm drains will also receive consideration. CW4CB will work with city staff to prepare a written strategy for implementing enhancements in each project subwatershed. The TAC will review the subwatershed-specific strategies and provide key input and recommendations to the project management team before the fieldwork to implement enhancements commences.

To evaluate the effectiveness of this task, CW4CB will collect and analyze appropriate sediment samples to inform a quantitative estimation of how the enhanced sediment removal and management activities reduce loads of PCBs (and mercury as applicable) to the Bay. The results of the effectiveness evaluation will be reported in the progress reports as data become available and summarized in the draft and final project report.

The efforts described in this task will be leveraged in that city staff will assist with implementation of the fieldwork. It is also anticipated that these efforts will be leveraged into the future in that the sediment management enhancements put into place and the associated pollutant load reductions will likely continue in the project subwatersheds (and expand to other locations) after the four year project period.

Task 5. Urban Runoff Treatment Retrofits

- **WQIF Funding:** \$3,750,000. **Non-federal Matching Funds:** \$400,000.
- **Leveraged Resources:** City staff will assist with aspects of siting, designing, installing and operating/maintaining the retrofit facilities and operation/maintenance of the retrofits will likely continue into the future. During retrofit conceptual design CW4CB will leverage BACWA's study on the feasibility of diverting stormwater to wastewater treatment plants.
- **Key Tasks and Activities:** Implementation of retrofits, including conceptual design (retrofit locations and types); planning/design/permitting/CEQA; construction of retrofits (dry season); operation and monitoring (wet season); effectiveness evaluation.
- **Deliverables:** Conceptual design report (retrofit locations and types); implementation results documented in quarterly progress reports and draft and final project report.
- **Outputs:** Installation of eight to 10 urban runoff treatment retrofits.
- **Outcomes:** PCB and mercury loadings to San Francisco Bay reduced and an estimated two to twelve square miles treated by retrofits to reduce potential hydrologic impacts on downstream receiving waters.

CW4CB will retrofit urban runoff treatment systems into existing MS4s at selected sites in the Bay Area urban landscape to intercept pollutants before they can enter San Francisco Bay. Solids removal is generally the most feasible option to treat PCBs and other sediment-bound pollutants in stormwater runoff. Stormwater treatment structures that remove solids commonly rely on sedimentation, filtration, flow through separation, or some combination of these processes. These

technologies are readily available and can effectively remove sediment and associated pollutants when properly designed, installed, operated and maintained (CASQA 2003).

CW4CB will identify eight to 10 locations throughout the Bay Area that present opportunities to retrofit treatment systems and assess the best retrofit options for each location. If CW4CB evaluates 10 retrofits, up to two of these may be existing retrofits, provided they meet all project goals. Retrofit locations will be selected primarily on the basis of elevated PCBs concentrations with additional consideration given to mercury concentrations. Options considered for types of retrofits will include detention basins, media filtration structures (e.g., sand filter), bioretention units, infiltration basins, constructed wetlands, and diversions from stormwater pump stations to existing domestic wastewater treatment plants.⁹

The planning of stormwater treatment retrofitting is potentially complex and will be carried out in a watershed context primarily during year one of the project (Table 3). To the extent feasible, Low Impact Development principles will be considered to reduce potential hydrologic impacts on downstream receiving waters (e.g., tidal portions of creeks, sloughs, and wetlands) and thereby protect related beneficial uses, habitat and ecosystems. The evaluation will consider technical and economical feasibility, taking into consideration that siting of some technologies may be limited by factors such as soil types, groundwater elevation, slopes, insect breeding and space constraints. In addition, in some cases treatment structure design may need to account for minimizing mercury methylation. The evaluation will include GIS spatial analysis and ground-truthing of potential sites and will consider appropriate locations both within and outside of the project subwatersheds discussed previously. The final selections will span treatment types and Bay Area watershed characteristics. A conceptual design report with proposed retrofit locations and types will be prepared with input and recommendations from the TAC.

Engineering design and permitting, including local agency approval, is anticipated to occur primarily during year two of the project. As required and appropriate, CW4CB will also prepare the documentation required to enable environmental review of the proposed retrofit projects under the California Environmental Quality Act (CEQA). It is anticipated that the environmental review under CEQA will not require developing an Environmental Impact Report (EIR) and at most initial studies with mitigated negative declarations will be sufficient.

We anticipate that the retrofits will be constructed during the dry season of the third year of the project and operation and evaluation of the retrofits will span the wet season between years three and four. Retrofit influent and effluent sampling and analysis data will be collected to evaluate and quantify the removal of PCBs, mercury, and other pollutants. The results of the effectiveness evaluation will be reported in the progress reports as data become available and summarized in the draft and final project report. The efforts described in this task will be leveraged in that city staff will assist with aspects of siting, designing, installing and operating/maintaining the retrofit facilities. It is also anticipated that these efforts will be leveraged into the future in that the operation/maintenance of the retrofits and the associated pollutant load reductions will likely continue after the four year project period.

⁹The Bay Area Clean Water Agencies are currently preparing a "white paper" that will evaluate existing data to describe the feasibility of diverting stormwater to wastewater treatment plants in the Bay Area. CW4CB will leverage this effort by reviewing the results of the evaluation during retrofit conceptual design.

Task 6. Regional Risk Reduction Program

- **WQIF Funding:** \$100,000. **Non-federal Matching Funds:** \$100,000.
- **Key Tasks and Activities:** Stakeholder advisory group convened; broad risk communication strategy developed; mini-grants awarded and implementation overseen; evaluation activities conducted.
- **Deliverables:** Broad risk communication strategy developed, mini-grant program documented and evaluated in quarterly progress reports and draft and final project report.
- **Outputs:** Public education outreach materials.
- **Outcomes:** Impacted populations will have a greater awareness and understanding of fish contamination issues and options for reducing exposures to pollutants in Bay fish.

Fish caught in San Francisco Bay have elevated levels of harmful chemicals, including mercury and PCBs. The current health advisory recommends limiting consumption of most Bay fish to no more than two meals per month. For high risk groups (pregnant and breastfeeding women, and children) only one meal per month is advised. The San Francisco Bay Seafood Consumption study showed that approximately two-thirds of people fishing in the Bay had limited understanding or no awareness of the health advisory. This study also showed that the consumption patterns among certain ethnic groups results in higher exposure to contaminants in Bay fish. CW4CB will implement a regional program of risk communication activities to raise public awareness of fish contamination issues in San Francisco Bay and to encourage fish-consuming populations to reduce their exposure to pollutants in contaminated fish. BASMAA may partner with the Bay Area Clean Water Agencies (BACWA) and other agencies to perform this task. Based on consultations with the California Department of Public Health (CDPH), the risk reduction task will consist of the following four sub-tasks.

Sub-task 1. Convene a risk reduction stakeholder advisory group (SAG)

CW4CB will initiate a stakeholder process to bring together local groups and organizations that are interested in seeking ways to reduce exposures to chemicals in contaminated fish. We will reach out to a broad range of stakeholders for participation on the SAG, including, but not limited to, community-based, social services, watershed, fishing, environmental justice, and parks organizations, as well as state and local agencies. The objective of the SAG will be to create, inform, and guide the development of a risk communication strategy (Task 2). In addition, CW4CB will use the SAG meetings to solicit general input on the objectives of the mini-grants program (Task 3), to keep members updated on the progress of the mini-grants and related activities (e.g., fish monitoring activities, Bay PCBs TMDL, new San Francisco Bay fish consumption advisory), and encourage new activities and collaborations among the participating groups (e.g., sign posting by fishing location managers).

Sub-task 2. Develop a broad risk communication strategy

CW4CB will work closely with the SAG to develop a broad risk communication strategy that will serve as the basis for planning future outreach, education, and risk reduction activities. The strategy will address how to communicate information about fish contamination issues, including the current advisory, to fish consuming populations, with an emphasis on those populations at greatest risk. The risk communication strategy that was used in the CALFED-funded Fish Mercury Project risk

reduction project in the Central Valley and Sacramento/San Joaquin Rivers watershed will be used as a model, but tailored by the SAG for the purpose of this project. The strategy will describe the target populations, the key messages that will be communicated, the types of future activities that would be most effective to reach these target populations (e.g., focused community/population-specific mini-grants, broader-based education efforts through established non-profit education centers), and methods for evaluating the effectiveness of these activities. The strategy will be updated as relevant and critical information becomes available, including a new fish consumption advisory for San Francisco Bay that the Office of Environmental Health Hazard Assessment plans to issue in 2010. One important component of the strategy will be a mini-grant program (Task 3) to engage some of the SAG members in implementing outreach, education, or risk reduction projects in the short term.

Sub-task 3. Award and oversee implementation of mini-grants

It is important to begin engaging local organizations regarding implementing outreach, education, and risk reduction activities concurrent with developing the broad risk communication strategy (Task 2). Local organizations may already have close relationships with communities who consume Bay fish and be able to address language and cultural barriers. CW4CB will develop a process to select and award small grants for local organizations to conduct these projects. We will seek input from the SAG to guide the general goals of the mini-grant program and seek SAG participation on the selection panel. Based on the needs of the funded groups, CW4CB may, as needed, conduct limited capacity building trainings on topics related to fish contamination (e.g., mercury health impacts, advisories) and help the groups to develop the skills needed to implement their projects. CW4CB will also monitor their progress and assist with evaluation and reporting requirements.

Sub-task 4. Conduct evaluation activities

Evaluation activities will include the following parts: evaluation of the SAG; mini-grant evaluation activities by the funded groups; CW4CB evaluation of mini-grants; and potentially evaluation of other broader-based education efforts through established non-profit education centers conducted in association with CW4CB. CW4CB will conduct evaluation of the SAG process, focusing on process indicators (e.g., who attends SAG meetings, what input they provide, how they guide strategy development). Broader feedback will also be solicited on whether the SAG is meeting its goals, the SAG activities that were most helpful to members, and ways the SAG could be improved. Mini-grant funded groups will implement an evaluation of their mini-grant project activities. CW4CB will provide guidance on how to conduct these evaluations. Evaluation will most likely focus on process indicators, such as the number of people who were reached by their mini-grant project activities or the number of materials distributed. CW4CB will also provide an evaluation summary that describes evaluation activities across funded groups. The evaluation summary will also include input from funded groups on their overall experience in the mini-grant program and how it could be improved, and grantee feedback on how their mini-grant activities will be sustained after the mini-grant funding ends.

Task 7. Outreach and Technology Transfer

- **WQIF Funding:** \$0. **Non-federal Matching Funds:** \$150,000.
- **Key Tasks and Activities:** Development of project web portal, written outreach materials, and project guidance manual; technical work shops.
- **Deliverables:** Results documented in quarterly progress reports and draft and final project report.
- **Outputs:** Project web portal, guidance manual, written outreach materials, technical workshops.

CW4CB will document the knowledge and experience gained and the lessons learned during this project. The goal will be to make information and guidance readily available to inform future efforts to mitigate urban runoff discharges of PCBs and other pollutants from other urban watersheds in the Bay Area and elsewhere in California and the United States. This task will promote the use of project results by others and will result in the public and professionals in the field being informed and engaged. CW4CB's methods and tools to facilitate outreach and information transfer will include the following:

- A project web portal will be developed at the outset of project and updated quarterly throughout the project term.
- A guidance manual will be prepared that provides essential information to others that wish to implement similar efforts.
- Written outreach materials will be developed, including a user-friendly summary of the project with references to where additional information is available (e.g., the web portal and guidance manual). The urban runoff treatment retrofits will be publicized and presented as demonstration projects.
- A technical workshop will be held covering all aspects of the project.

As feasible and appropriate, the monitoring data from this project (especially the urban runoff treatment retrofit monitoring) will be submitted for inclusion in the International Stormwater BMP Database.

7. Programmatic Capability and Past Performance

The Bay Area Stormwater Management Agencies Association was established in 1989 as a regional association through a memorandum of understanding (MOU) covering the nine Bay Area counties. BASMAA was started by local municipalities to facilitate information sharing and cooperation and to develop products and programs that would assist them in meeting their NPDES permit and Clean Water Act requirements. BASMAA is designed to encourage information sharing and collaboration and it provides an institutionalized mechanism for its member agencies to develop innovative products and programs that are more cost-effective done regionally than can be accomplished locally.

BASMAA is focused on regional challenges and opportunities to improving the quality of stormwater that flows to our local creeks, San Francisco Bay and Delta, and the Ocean. BASMAA's work covers the full breadth of stormwater-related topics including monitoring, new

development, public information / participation, commercial / industrial, illicit discharges, flood control, TMDLs, and permitting.

Currently, BASMAA is a consortium of nine San Francisco Bay Area municipal stormwater quality programs, comprised of 96 Bay Area agencies (municipalities, counties, and special districts). Each BASMAA member agency plays a significant role in managing stormwater and urban runoff within its jurisdiction and in coordination with others in our region in order to protect the health of waters and aquatic life of Bay Area watersheds that drain into the region's six USEPA-identified sub-basins: Suisun Bay, San Pablo Bay, Coyote Creek, San Francisco Bay, Tomales-Drake Bays, and San Francisco Coastal South.

For the past 20 years, BASMAA has provided a forum for agencies with common interests, challenges, and responsibilities to collaborate on stormwater management issues of mutual interest and needs. Though its organizational framework has evolved from an assortment of agencies bound together by an MOU to the 501(c)(3) nonprofit entity it is today, BASMAA has continued to help its members by promoting understanding of existing and emerging stormwater quality management issues and technologies, facilitating agency cooperation, increasing program efficiency and effectiveness, and advancing sustainable stormwater quality management approaches in executive and legislative decision-making and public debate. Through BASMAA, stormwater quality management programs have been able to address regional, partnership, and locally specific needs as set forth in NPDES stormwater management permits issued by the Regional Water Board.

BASMAA committees and work groups have overseen the completion of numerous collaborative regional projects contracted to its agencies or consultants under its baseline and tasks of regional benefit budgets.¹⁰ BASMAA's new challenge and opportunity is to assist its member stormwater quality management programs and their constituent agencies to work with the Regional Water Board on the finalized version of a municipal regional stormwater permit (MRP) that addresses watersheds in the Bay Area, and to foster collaboration and mutual assistance on implementation of MRP provisions. For the past twenty years, BASMAA and its participating entities have proven their capacity to collaborate on significant projects of regional importance, and have produced deliverables and outcomes that provide much of the foundation for current regional stormwater quality management efforts, including this proposal. BASMAA fully expects to continue to deliver the same quality of project capacity and success its members have achieved through collaborative association.

Some Major BASMAA Regional Projects

- Recognized Surface Cleaner program (1996 -)
- Construction site inspection / education program (1990s)
- Regional Advertising Campaigns (1996 -)
- Brake Pad Partnership (1996 -)
- *Start at the Source* design manuals (1997, 1999)
- IPM Partnership / *Our Water, Our World* program (1998 -)
- Joint Stormwater Agency Project to Study Urban Sources of Mercury, PCBs, and Organochlorine Pesticides (2001-'03)
- Bay Area Hydrology Model (BAHM) (2003)

¹⁰ For additional capacity documentation, see Attachments Section for key staff resumes and the BASMAA Baseline Budget Projects and Programs Report.

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In addition to the tens of projects and programs started and sustained by BASMAA using millions of dollars in funds from its members and other agencies over the years, BASMAA has received and conducted one USEPA grant project: the *Our Water, Our World Promotion — Statewide Expansion and Evaluation*; funded through a Pesticide Environmental Stewardship Program (PESP) grant through the National Foundation for IPM Education. Although the grant amount was relatively small (\$40,000), the actual tasks were significant, including using some of the grant monies to leverage the existing *Our Water, Our World* Program in the Bay Area to expand the program statewide by recruiting tens of agencies outside of the Bay Area to start and support the program in their jurisdictions. The other key aspect of the grant was the development and implementation of a program evaluation to evaluate the effectiveness of the *Our Water, Our World* Promotion through direct performance measurement of store customers and to make recommendations for future efforts¹¹.

¹¹ See Attachments section for Final PESP Grant Compliance Report.